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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/577,854

04/28/2006

Satoshi Takei

127856

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25944 7590 08/20/2010

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EXAMINER

LEE, SIN J

ART UNIT

PAPER NUMBER

1795

NOTIFICATION DATE

DELIVERY MODE

08/20/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/577,854	Applicant(s) TAKEI ET AL.	
	Examiner Sin J. Lee	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 6 and 9 is/are rejected.
- 7) ☒ Claim(s) 4, 7, 8 and 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. In view of the terminal disclaimer, previous double patenting rejection over U.S. Pat. No. 7,361,718 is hereby withdrawn.
2. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims 1-3, 5, 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rudolph et al (4,011,392).

Rudolph teaches a coating composition containing mixed esters of starch (col.1, lines 4-18). Specifically, in Example E, Rudolph teaches low molecular weight *Dextrin-Acetate*-Hexahydrophthalate. Rudolph teaches that his mixed esters may be combined

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with a crosslinking agent (see col.20, lines 54-59). Rudolph also teaches (col.22, lines 56-65) that his composition can also include phenol (which is a carboic acid) to inhibit degradation. Based on Rudolph's teaching, it would have been obvious to one skilled in the art to add a crosslinking agent and phenol in Rudolph's coating composition containing Dextrin-Acetate-Hexahydrophthalate with a reasonable expectation of success. The acetate moiety in Dextrin-Acetate teaches present formula (1). Rudolph's mixed esters of starch have Mw ranging up to about 100,000. This range overlaps with present range of 4,000 to 20,000 and thus renders obvious present range of claim 2. In the case "where the [claimed] ranges overlap or lie inside ranges disclosed by the prior art," a prima facie case of obviousness would exist which may be overcome by a showing of unexpected results, *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976). Rudolph's composition also contains solvent (see col.22, lines 32-38). Thus, Rudolph's teaching renders obvious present inventions of claims 1-3, 5, 6 and 9; it is the Examiner's position that Rudolph's composition containing Dextrin-Acetate, a crosslinking agent, phenol (a carboic acid) and a solvent would inherently be capable of forming an underlayer coating of a photoresist in a lithography process as recited in present claims 1 and 2 and also capable of forming an underlayer coating by coating the composition on a semiconductor substrate having a hole with an aspect ratio shown in height/diameter of 1 or more, and baking it, as recited in present claims 5 and 9.

Even though applicants recite "wherein the underlayer coating composition forms an underlayer coating of a photoresist in a lithography process" at the end of claims 1 and

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2, those claims (which are still written as composition claims) still do not require an active step of using the underlayer coating composition as an underlayer coating under a photoresist coating. Also, those claims 1 and 2 are not drawn to a laminate that requires the underlayer coating (formed from the underlayer coating forming composition) and a photoresist coating applied on the underlayer coating, either. Thus, it is still the Examiner's position that Rudolph's composition containing Dextrin-Acetate, a crosslinking agent, phenol (a carboic acid) and a solvent would inherently be capable of forming an underlayer coating of a photoresist in a lithography process as recited in present claims 1 and 2 and also capable of forming an underlayer coating by coating the composition on a semiconductor substrate having a hole with an aspect ratio shown in height/diameter of 1 or more, and baking it, as recited in present claims 5 and 9.

Allowable Subject Matter

5. Claims 4, 7, 8 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Rudolph does not teach or suggest present method claims 4, 7, 8 and 10, which set forth active steps of using the composition (as an underlayer coating) under a photoresist layer.

Response to Arguments

6. Applicants argue that present claims 1 and 2 "require" the underlayer coating composition to form the underlayer coating. The Examiner does not agree that there is such a requirement indicated in those claims. Present claims 1 and 2 are still written in

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composition claims. That is, they are not method claims, which comprise an active step of using the underlayer coating composition as an underlayer coating under a photoresist coating. Also, those claims are *not drawn to a laminate* that requires the underlayer coating (formed from the underlayer coating forming composition) and a photoresist coating applied on the underlayer coating, either. It is still the Examiner's position that Rudolph's composition containing Dextrin-Acetate, a crosslinking agent, phenol (a carboic acid) and a solvent would be capable of forming an underlayer coating of a photoresist in a lithography process as recited in present claims 1 and 2 and also capable of forming an underlayer coating by coating the composition on a semiconductor substrate having a hole with an aspect ratio shown in height/diameter of 1 or more, and baking it, as recited in present claims 5 and 9.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sin J. Lee whose telephone number is 571-272-1333. The examiner can normally be reached on Monday-Friday from 9:00 am EST to 5:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly, can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

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Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Sin J. Lee/

Primary Examiner, Art Unit 1795

August 14, 2010